ABSTRACT

A fault tolerant optical switch architecture improves the level of reliability in an optical communication system by incorporating an optical switch backup that engages quickly upon notification of a failure mode of a primary switch. In an example embodiment, an arrangement for optical communication between first and second nodes includes a first optical switch having first-switch transmit and receive channels and a second optical switch having second-switch transmit and receive channels. The first and second optical switches of the optical communications arrangement conduct self-tests and indicate whether the self-tests have failed. The arrangement also includes an optical coupler that receives the first-switch and second-switch transmit channels and provides an output for transmit to at least one of the first and second nodes. The arrangement further includes an optical splitter that receives an optical signal coupled from at least one of the first and second nodes and provides an output coupled to the first-switch and second-switch receive channels. Also included is a control circuit that can be built into one or both of first and second optical switches for self-activation in response to the other of the first and second optical switches conducting the self-test.